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REMARKS

In view of both the amendments presented above and the following discussion, the Applicants submit that none of the claims now pending in the application are non-enabling, anticipated, or obvious under the respective provisions of 35 U.S.C. § 112, §102, and §103. Thus, the Applicants believe that all of these claims are now in allowable form.

It is to be understood that the Applicants, by amending the claims, do not acquiesce to the Examiner's characterizations of the art of record or to Applicants' subject matter recited in the pending claims. Further, Applicants are not acquiescing to the Examiner's statements as to the applicability of the prior art of record to the pending claims by filing the instant responsive amendments. In particular, the Applicants have amended claim 12 for administrative purposes to better claim the invention. The above amendments to claim 12 are not made for patentability reasons. As discussed below, the Applicants believe claims 1-21 are patentable over the cited prior art. As such, the above amendments to claim 12 do not invoke the restrictions on the Doctrine of Equivalents as required under Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 234 F.3d 558 (Fed. Cir. 2000) (en banc). Consequently, the Applicants should be accorded the full scope of his claims under the Doctrine of Equivalents.

Objections

IN THE SPECIFICATION:

The Applicant has amended the specification to provide minor grammatical corrections on page 18 of the originally filed application as noted by the Examiner. Such grammatical corrections do not add any new subject matter

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to the application. Therefore, the Applicants respectfully request that the objection be withdrawn.

REJECTION OF CLAIMS UNDER 35 U.S.C. §102

The Examiner has rejected claims 1-21 as being rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No.4,807,224, issued February 21, 1989 to Naron et al. (hereinafter Naron). Specifically, the Examiner offers that Naron discloses a method of multicasting data messages to members of a multicast group comprising all the steps recited in claim 1 in specifically cited columns 5, lines 22-47 and column 8, line 50 -column 9, line 12 to support his position. The rejection is respectfully traversed.

"Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim" (Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984)(citing Connell v. Sears, Roebuck & Co., 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983)) (emphasis added). The Naron reference fails to disclose each and every element of the claimed invention, as arranged in the claim.

In response, Applicants respectfully submit that each and everyone of the specific elements of claim 1 have not been disclosed in Naron nor is a method disclosed in Naron that notifies the commit servers of the assignment of a first sequence number of a first data message or commit servers sending an acknowledgment to the sequencer regarding notification of assignment of the first sequence number to the first data message nor a step of committing the first sequence number to the first data message in response to the sequencer receiving acknowledgments of notification of the assignment of the first sequence number. Naron merely discloses that as data arrives from a source S401, it is continually broken up by a data source means and packaged. Each data packet is packaged to contain data representing sequencing data as well as information

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as per column 8, lines 55 – column 9, line 12. That is, there is no disclosure of one or more commit servers in Naron which subsequently perform the following steps of notifying. There is no specific discussion of how the data packets are sent through Naron's system so much as it is taken for granted that this action is performed. Naron appears to be much more involved with guaranteeing receipt of data packets and various failure detection means to account for transmission errors. Accordingly, it is respectfully submitted that Naron does not teach all the aspects of the present invention; thus, the claim is patentable under the statute.

Furthermore, claims 2-6 depend, either directly or indirectly, from independent claim 1 and recite additional features thereof. As such, and for at least the same reasons discussed above, the Applicants submit that these dependent claims also fully satisfy the requirements under 35 U.S.C. § 102 and are patentable thereunder. Therefore, the Applicants respectfully request that the rejection be withdrawn.

Additionally, the Examiner has also rejected claim 7 under the provisions of 35 U.S.C. § 102(b) indicating that claim 7 contains the same limitations as recited in claim 1. Arguments refuting the Examiner's conclusion of anticipation with regards to claim 1 has been presented above. It is respectfully submitted that the same argument holds true for claim 7 as this claim also contains steps involving the commit servers being notified and subsequently acknowledging notification which is not taught, disclosed or suggested by Naron. Accordingly, claim 7 is also patentable under the statute.

Furthermore, claims 8-14 and 16-21 depend, either directly or indirectly, from independent claim 7 and recite additional features thereof. As such, and for at least the same reasons discussed above, the Applicants submit that these dependent claims also fully satisfy the requirements under 35 U.S.C. § 102 and are patentable thereunder. Therefore, the Applicants respectfully request that the rejection be withdrawn.

The Examiner has rejected claim 15 as it contains the same limitations as claim 16. In response, Applicants indicated that this does not appear to be true

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upon inspection of the Applicants' version of the case file. Originally filed claim 15 reads:

"A method according to Claim 14, further comprising step for synchronizing a first asynchronous upper layer process of a first asynchronous member of the multicast group with other members of the multicast group, said first asynchronous member not being said sequencer or one of said data or commit servers."

and claim 16 reads:

"A method according to Claim 14, further comprising the step of synchronizing a first asynchronous upper layer process of a first asynchronous member of the multicast group with other members of the multicast group, said first asynchronous member not being said sequencer or one of said data or commit servers, said synchronizing step including the steps of:

said first asynchronous member retrieving a first checkpoint from said checkpoint servers;

As such, these two claims do not have the same limitations. Additionally, Applicants' file shows a March 6, 2003 fax transmission from Attorney Keith D. Nowak of Dickstein, Shapiro, Morin & Oshinsky of claims nearly identical to those originally filed. Such transmission shows claim 15 as:

"A method according to Claim 14, further comprising step for synchronizing a first asynchronous upper layer process of a first asynchronous member of the multicast group with other members of the multicast group, said first asynchronous member not being said sequencer or one of said data or commit servers."

and claim 16 is:

"A method according to Claim 14, further comprising the step of synchronizing a first asynchronous upper layer process of a first asynchronous member of the multicast group with other members of the multicast group, said first asynchronous member not being said sequencer or one of said data or commit servers, said synchronizing step including the steps of:

said first asynchronous member retrieving a first checkpoint from said checkpoint servers;

said first asynchronous process retrieving all committed data messages following terminal data message corresponding to the first checkpoint;

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delivering said first checkpoint to said first asynchronous upper level process;
delivering said all committed data messages following the terminal data message corresponding to the first checkpoint to said first asynchronous upper level process; and
said first asynchronous upper level process processing said delivered checkpoint and said delivered data messages to achieve a system state identical to system states of other members of the multicast group."

In either instance, claim 15 and 16 do not have the same limitations; hence, withdrawal of the rejection is respectfully requested.

Additionally and with respect to what Applicants' representative believes to be the full set of claims, Applicants' representative herein requests further examination of originally filed claim 22. That is, it appeared that the originally filed specification contained or intended to include 22 claims. However, by virtue of an unknown clerical error by previous counsel, a portion of claim 16 and all of claim 17 was apparently omitted from the application. The March 6, 2003 facsimile transmission from the office of Dickstein, Shapiro, Morin & Oshinsky appears to be an attempt to correct said clerical error by including a full set of claims. However, upon review of said facsimile transmission, it appears that while the full content of originally filed claim 16 and claim 17 were restored, originally filed claim 22 appears to have been inadvertently deleted from this claim set. At this point, it is respectfully submitted that claim 22 be examined along with all other claims as it was originally filed in the application and, according to inspection of the originally filed application papers, 22 claims were, in fact, paid for by the Applicants. That is, it appears that the Examiner has conducted his first examination based upon the March 6, 2003 facsimile set of claims which only included claims 1-21. Therefore, inspection of claim 22 is respectfully requested as an originally filed claim in the next office action.

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REJECTION OF CLAIMS UNDER 35 U.S.C. § 112

A. 35 U.S.C. § 112, first paragraph – Claims 1-21

The Examiner has rejected claims 1-21 under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such as way as to enable one skilled in the art to which it pertains to make or use the invention. Specifically, the Examiner alleged that in claims 1 and 7 the Examiner cannot ascertain what quantity of requests is required to trigger the assignment of a sequence number to a data message from the data servers.

In response, Applicants submit that the relevant portion of claim 1 is highlighted as follows: "assigning the first sequence number to the first data message, in response to the sequencer receiving a first quantity of the requests to assign a first sequence number to the first data message;". Additionally, the relevant portion of claim 7 is as follows: "assigning a sequence number following all sequence numbers assigned prior to assignment of the sequence number to said each data message, in response to the sequencer receiving a first quantity of requests to assign a sequence number to said each data message;".

Accordingly, it is respectfully submitted that there need not be a specific quantity of requests for the claim to be understood, but solely that some quantity, and in this case identified as a first quantity, be presented in the specification. Support for such "first quantity" may be found in various locations of the specification. For example, at the Summary of the Invention section found at the bottom of page 7, it is shown that "... each data server that received the data message requests the sequencer to assign a sequence number to the data message ... after the sequencer receives a predetermined number of requests to assign a sequence number to the data message, the sequencer assigns the next sequence number to the message" Additionally, at page 17, lines 4-6 of the specification, it is seen that "... before the sequencer informs the entire group about commitment of a sequence number to a specific message, the sequencer must first receive

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acknowledgments from at least k different commit servers. This ensures that the sequence number information is replicated at least k times." Additionally, at page 17, lines 15 and 16, it is indicated that "... the sequencer needs to wait for message from only k servers each time, instead of waiting for messages from all group members" Accordingly, it is respectfully submitted that the "first quantity of requests" identified in claims 1 and 7 has been shown in the specification and is appropriately supported therein.

Additionally, the Examiner has indicated that he does not understand the use of the term "garbage collection" and "message consolidation" as used in claims 6 and 12. In response, Applicants indicate that the concept of garbage collection relates to the timing of intentionally older data messages and is specifically and well described in the specification beginning at page 14, line 7 – page 15, line 8. Specifically, two conditions are given under which a particular data message would be considered garbage (and thereby not having to be assigned a sequence number for further scheduling and dissemination to other destinations). Additionally, with respect to the phrase "message consolidation," Applicants respectfully respond to the Examiner by indicating a discussion of this terminology and the actions that it represents are clearly described at page 12, lines 8-19 and page 13, lines 1 and 2. Simply stated, message consolidation is a means for maintaining consistency among all local copies of data messages being passed out on the system.

The Examiner has further indicated that the term "checkpoint servers" in claim 6 is regarded as a limitation that does not have any functional limitations disclosed and, therefore, one skilled in the art would not know how to use the checkpoint servers within this embodiment. In response, Applicants indicate that the first use of the terminology "checkpoint servers" in the claims is found in the preamble of claim 6; therefore, should not be considered a limitation on the method. The limitations added to claim 1 by virtue of claim 6 are clearly delineated after the phrase "The method further including the steps of:" which includes three individual steps that add their own specific functionality (as

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described above and as presented in the specification) to further elaborate on the method of claim 1. Accordingly, it is respectfully submitted that one skilled in the art would understand the usage of the terminology after reviewing the specification.

The Examiner has further indicated that the phrase "said first asynchronous member not being said sequencer or one of said data or commit servers:" in claim 15 is not concise or exact since the "asynchronous member" could be "one or more clients" or "one or more checkpoint servers". In reply, Applicants state that the Examiner's interpretation of the claim is reasonable, but the claim is also supported by the specification. Specifically, synchronization of a client is discussed at page 13, lines 1-3. Additionally, synchronizing an asynchronous upper layer process is performed by assistance of the checkpoint server as detailed at page 13, lines 10-13. Accordingly, the claim is considered clear and concise as it indicates what member cannot be a first asynchronous member; therefore, by deduction, one skilled in the art can determine what the members may be (a client or a checkpoint server). Accordingly, the claim is considered sufficiently concise and clear.

The Examiner has indicated that he does not understand the limitation "said logical timestamp including a most recent sequence number known to the original sender of each said data message when said each data message was first sent" as recited in claims 17 and 18. Specifically, the Examiner has indicated that based on his understanding of claim 7 (on which claim 18 depends), it is the sequencer that assigns sequence numbers, not an original sender when the message is first sent as claimed in claim 17 and 18. In response, Applicants understand the Examiner's position, but wishes to clarify and correct the Examiner's statement. Specifically, neither claim 17 nor claim 18 at any time recited that it was the original sender that assigns sequence numbers. The logical timestamp (as discussed on page 14, lines 7-20) is defined as the largest sequence number that the sender client knew about at the time when the message was sent for the first time. There has been no disclosure or

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recitation of the sender client assigning such logical timestamp rather, it acknowledges this information bit in the data message for the purposes of, among other things, garbage collection and checkpointing. All of this is clearly described in the specification at the indicated locations above. Accordingly, it is respectfully submitted that the Examiner has made a slight misinterpretation of the recitation of the claims as the original sender knowing the sequence number is not the same as assigning sequence numbers.

B. 35 U.S.C. § 112, second paragraph – Claims 1-21

The Examiner has indicated that the claims are generally narrative and indefinite thus failing to conform to current U.S. practice. Specifically, he indicates that claims are replete with grammatical and idiomatic errors; however, there is not a specific listing of such alleged errors with the exception of those discussed below with respect to claims 1, 7 and 16. In response, if the Examiner believes that specific amendments to any of the claims should be made, Applicants are open to discussing same with the Examiner as grammatical and idiomatic errors are easily fixed. While some claims do appear rather lengthy, it is Applicants' position that they are not indefinite and, in fact, recite rather specifically the detailed steps of the invention which are to be covered.

The Examiner indicates that claims 1 and 7 (and all subsequent dependent claims) are vague because of the recitation of the limitation "members of a multicast group" has a client element within this group that does not have any associated limitations and its purpose is not known in the invention. In response, it is respectfully submitted that the phrase "members of a multicast group" and its various elements are listed in the preamble of claims 1 and 7; thus, do not constitute a specific limitation of the claim so much as the establishment of an environment in which the method of the subject invention is practiced. Furthermore, the members of the multicast group are discussed in the specification starting at page 9, line 1 – page 10, line 8 wherein the client is the last member listed in the group and is identified as all other members of said

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group that are not any of the above-identified elements (such as a sequencer, commit server, data server or a checkpoint server). Additionally, in claim 1 and claim 7, the last step in each of the methods recited includes "informing the members of the multicast group of the commitment" Such a recitation includes, a list of the clients, as they are part of the multicast group. Therefore, a limitation is attached to the client in that it is one of the members that are informed. Its specific purpose, although not specifically recited in the claims, is well documented in the specification and specifically at page 10, lines 17-20. Accordingly, it is respectfully submitted that the claim is sufficient, clear and concise in the use of its terminology.

The Examiner has also indicated that the phrase "said first asynchronous process retrieving all committed data messages following terminal data message corresponding to the first checkpoint ..." in claim 16 does not make grammatical or common sense since the word "following" in the view of the Examiner's interpretation does not appear proper in that it would follow that the data messages to be retrieved are the ones before the terminal data message.

In response, Applicants offer that the Examiner's interpretation is incorrect. Specifically, claim 16 and the phrase "terminal data message" depend indirectly from claim 13 where the phrase "a terminal data message" is first introduced to the claims. Specifically, at page 26, line 15 (approximately the middle of claim 13), it is indicated that "... said checkpoint associated with said each message consolidation corresponding to a terminal data message" Therefore, the claims have identified the phrase terminal data message as being a message that is associated with a checkpoint in the data message processing operations. Checkpointing is an important feature of the invention as it allows for the resending of only a limited number of data messages as opposed to all data messages should a member of the group become asynchronous (page 13, lines 1-5). The specific phrase of claim 16 identified by the Examiner is correct in its recitation based upon the cited passage in the specification. That is, the step of synchronizing introduced at claim 16 includes the substeps of retrieving a first

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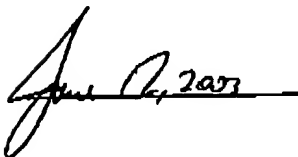
checkpoint (which would, for example, be the latest checkpoint at page 13, line 4) and the substep of retrieving all committed data messages following (coming after, not before) the data message corresponding to this first checkpoint (page 13, lines 4 and 5). Overall, it is submitted that the claim does make grammatical and common sense in that in order to synchronize a member of the group, it would logically follow that it had received all prior data messages up to the last checkpoint where the member became asynchronous. Thus, the asynchronous member need only pick up data messages from such a checkpoint. Accordingly, it is respectfully submitted that the claim is definite and distinctly claiming the intended subject matter.

Thus, Applicants submit that claims 1-21, as they now stand, fully satisfy the requirements of 35 U.S.C. § 112. Therefore, the Applicants respectfully request that the rejection be withdrawn.

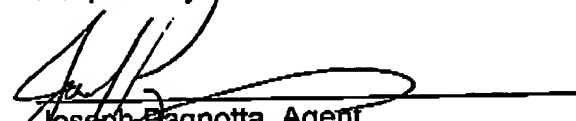
CONCLUSION

Thus, the Applicants submit that claims 1-21 are in condition for allowance. Furthermore, the specification has been amended as requested by the Examiner. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, it is requested that the Examiner telephone Mr. Eamon J. Wall at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.



Respectfully submitted,



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CERTIFICATE OF FACSIMILE TRANSMISSION under 37 C.F.R. §§ 1.6 and 1.8

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Janet Kondrk

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